



EXCORE NUCLEAR INSTRUMENTATION SYSTEM

Section 9.1

Objectives

1. List the purposes of the excore nuclear instrumentation system.
2. List the reactor protection system inputs provided by the excore nuclear instrumentation system and the purpose (basis) of each.

Objectives (Cont.)

3. List the interlocks and permissives provided by excore nuclear instrumentation system and the purpose (basis) of each.
4. Explain how the excore nuclear instrumentation system is capable of detecting both axial and radial (azimuthal) power distribution.
5. Explain how the power range signal is calibrated to indicate reactor thermal output.

Objectives (Cont.)

6. Explain why gamma compensation is required only in the source and intermediate ranges.
7. Explain the effects of an improperly compensated intermediate range.
8. Explain why channel test signals are additive to the channel outputs.

Excore NIS Purpose

- ▶ Provides indication of Reactor power from shutdown to full power conditions.
- ▶ Provides inputs to the Reactor Protection System during start up and power operation.
- ▶ Provides reactor power information to Rod Control System (Auto).
- ▶ Provides axial and radial power distribution information.

Fig 9.1-1

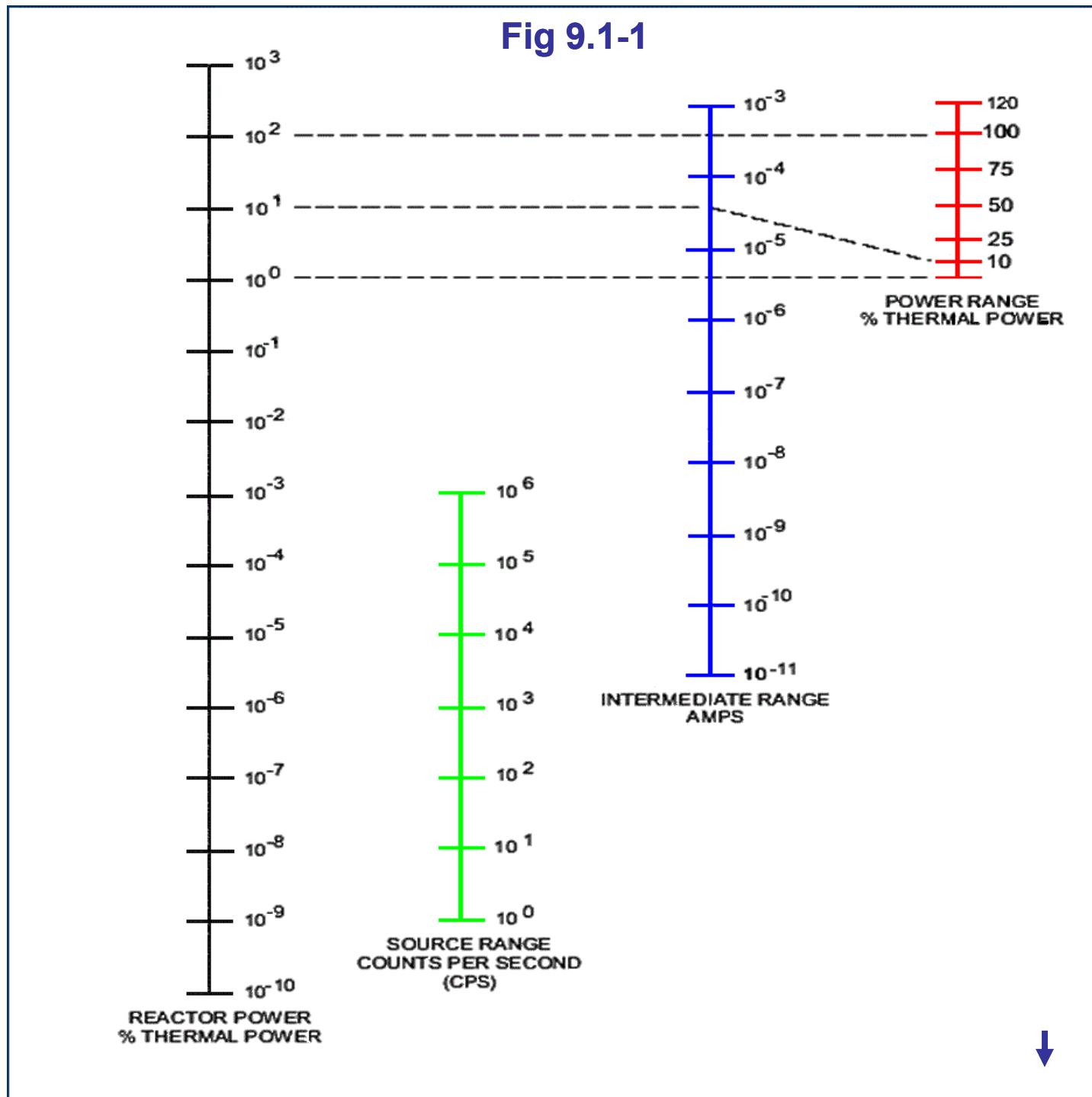


Fig 9.1-3

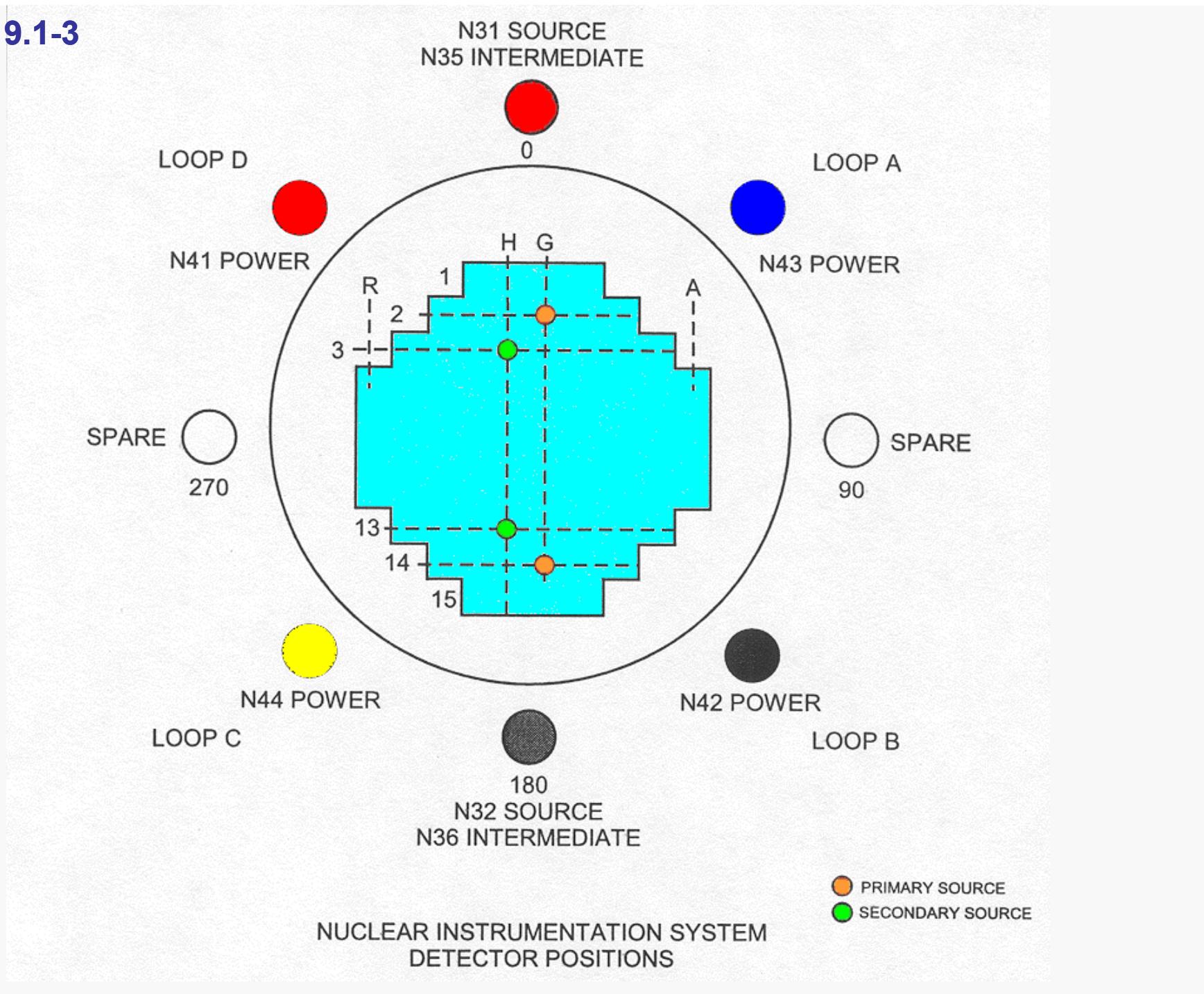
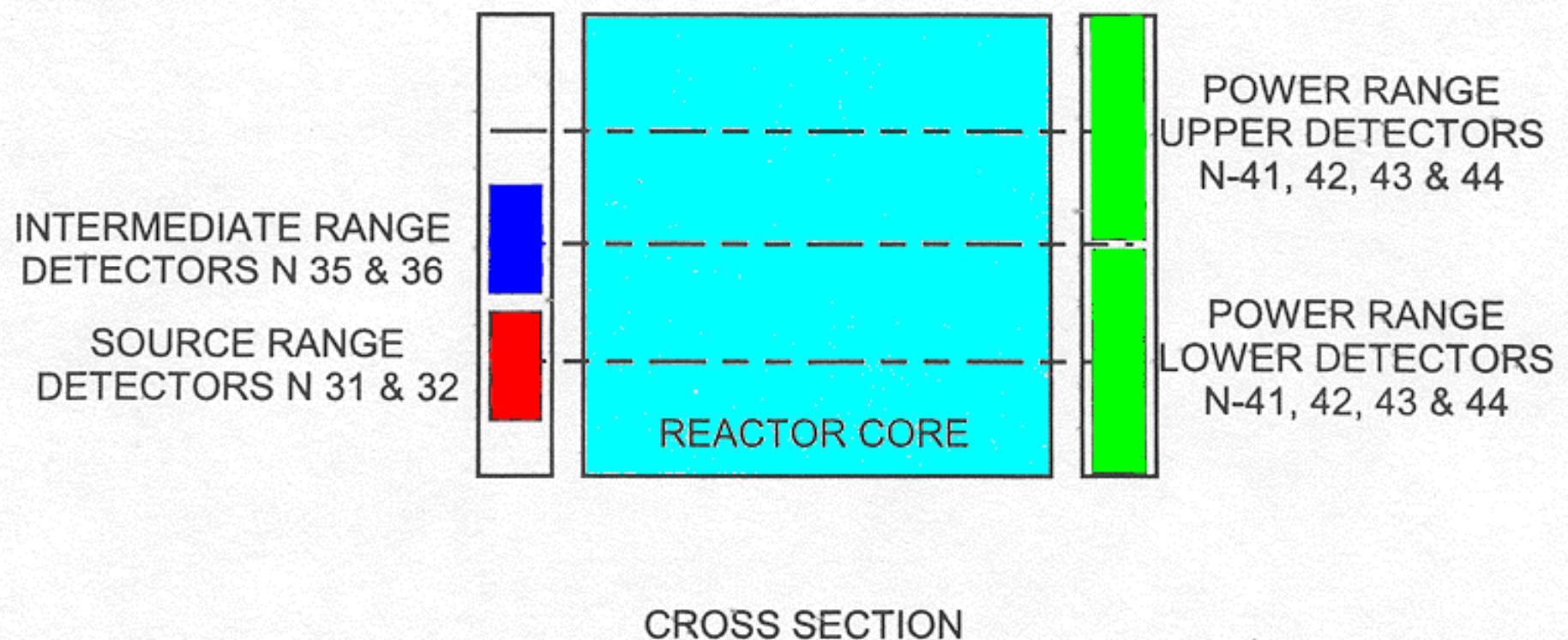


Fig 9.1-3



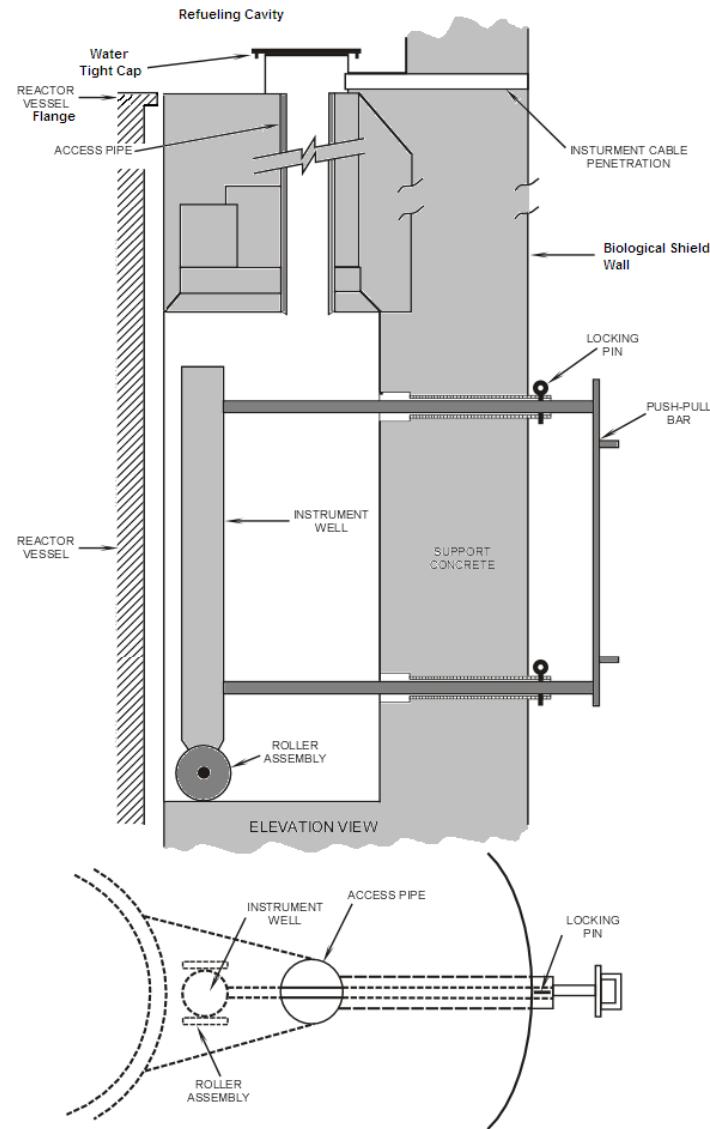
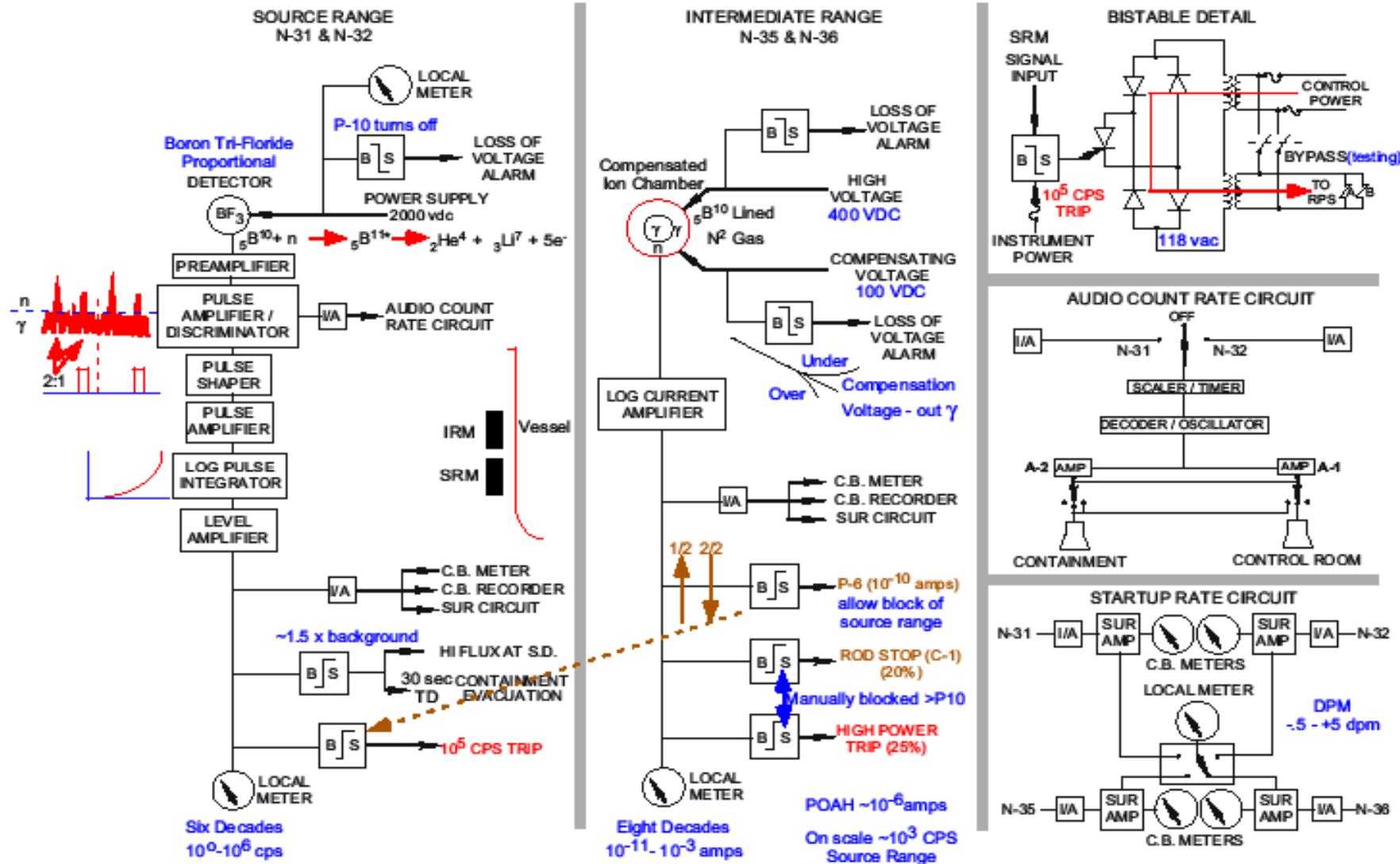


Figure 9.1-2 Detector Instrumentation Wells

Figure 9.1-4 Source and Intermediate Range Block Diagrams



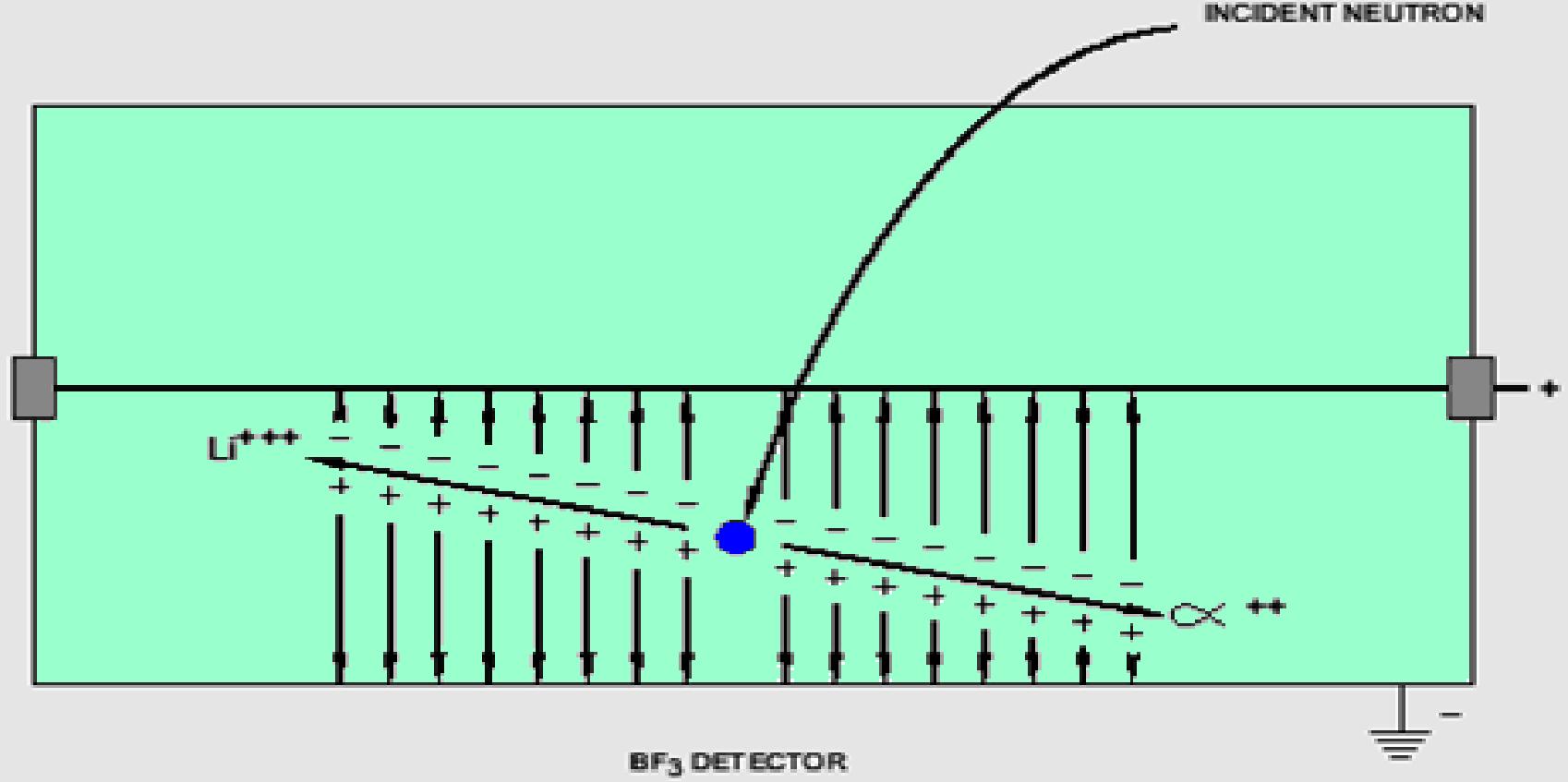


Fig 9.1-14

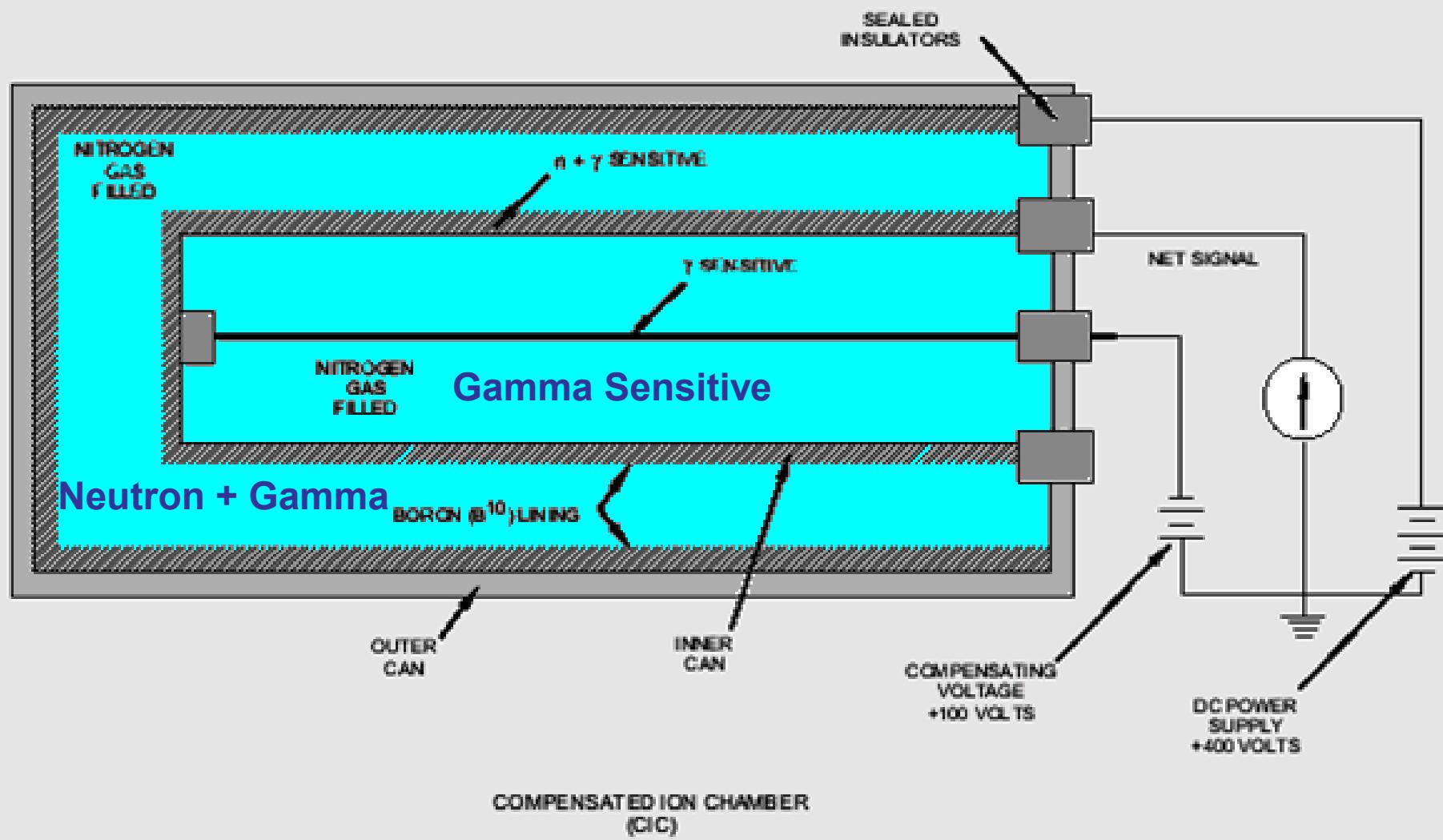


Fig 9.1-15



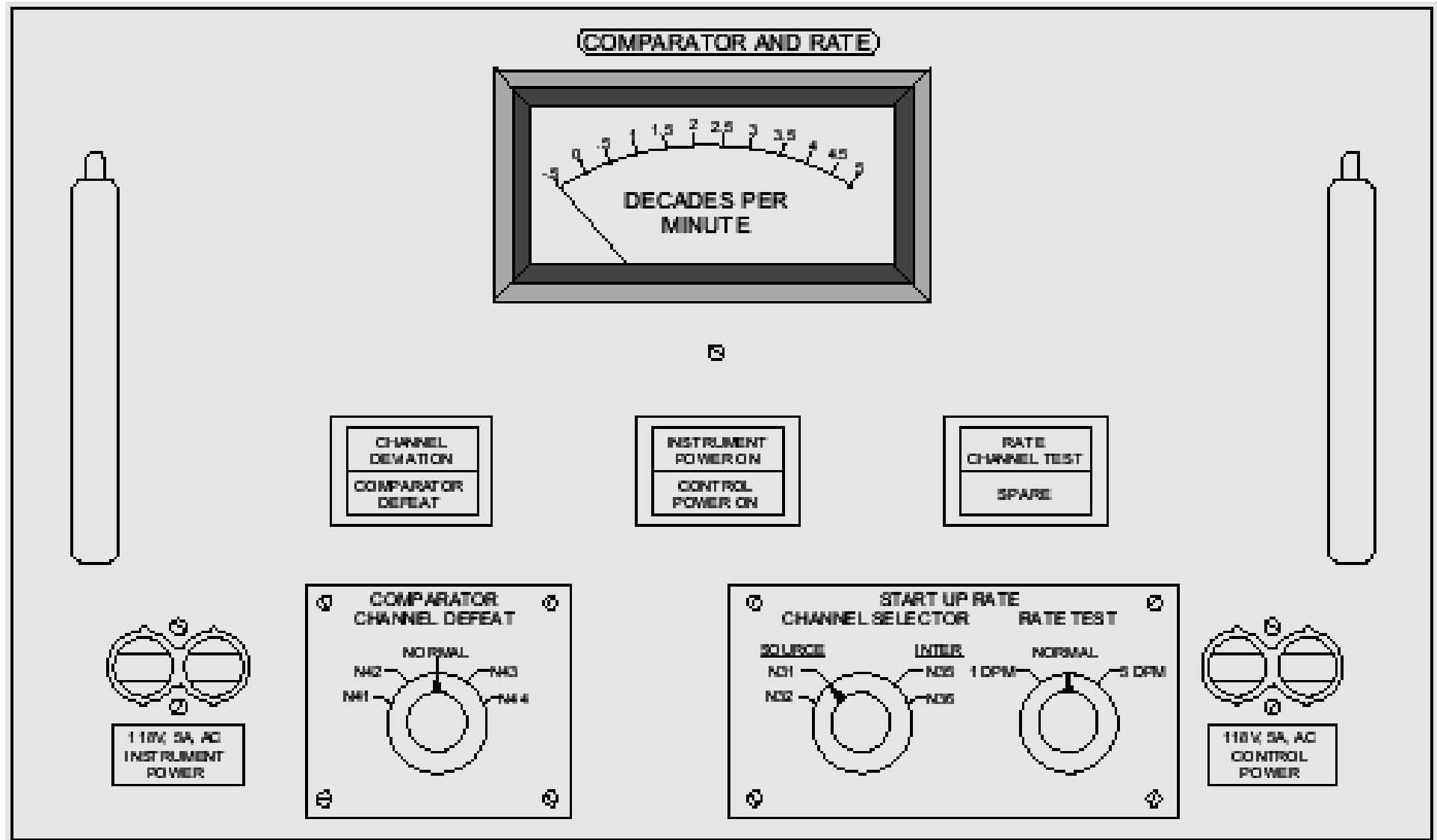
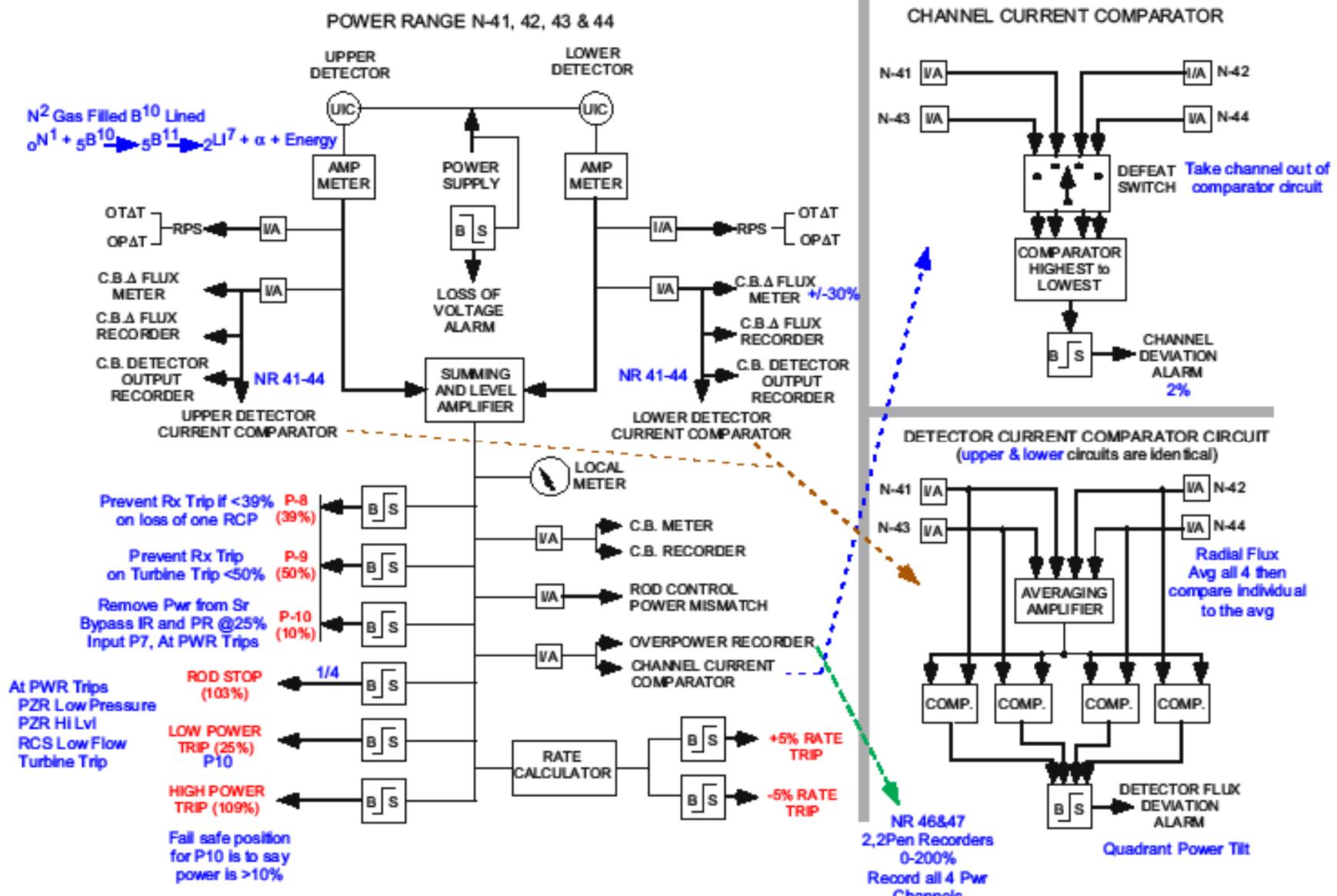


Fig 9.1-12

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Figure 9.1-5 Power Range Channel Block Diagram



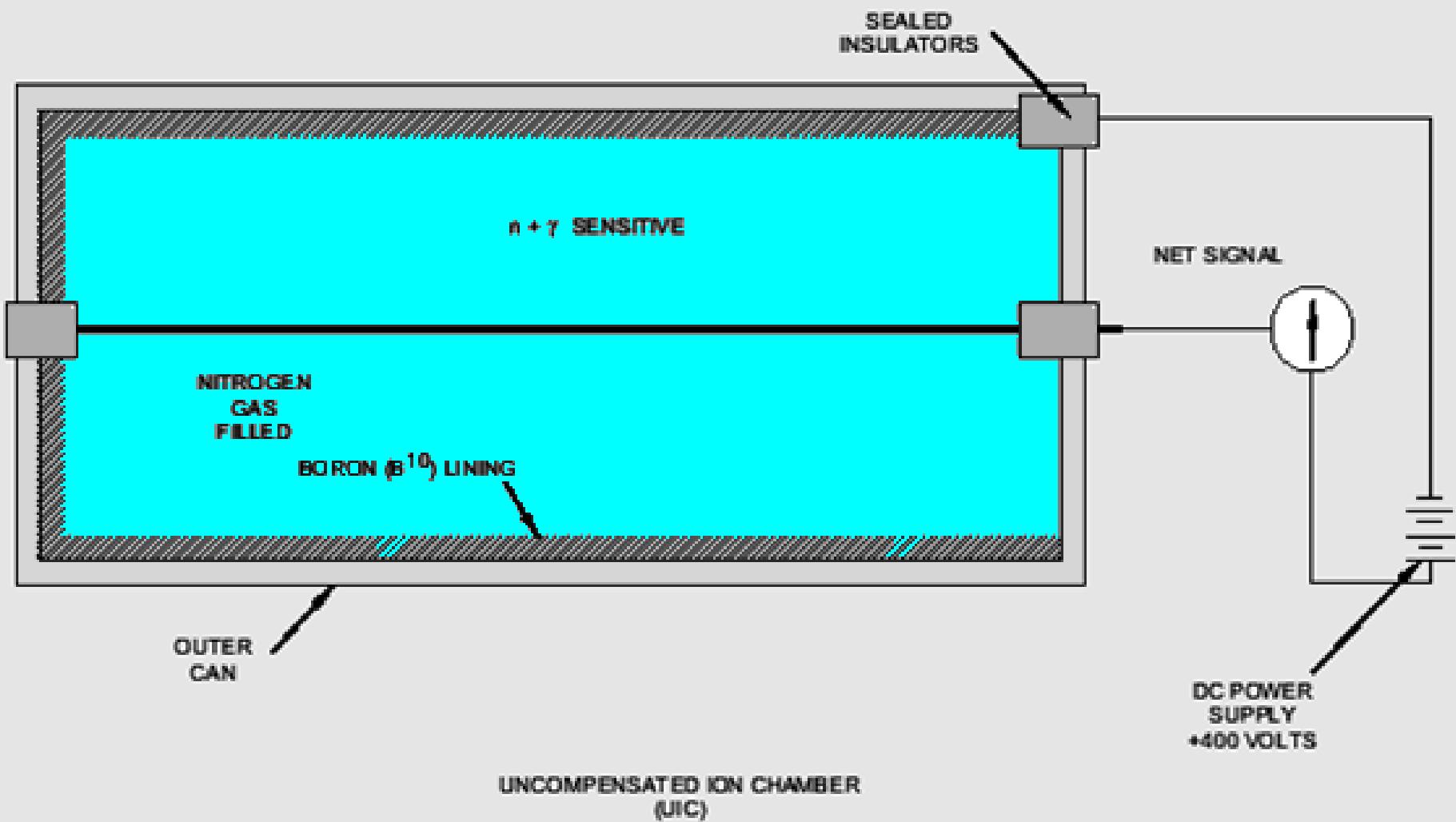
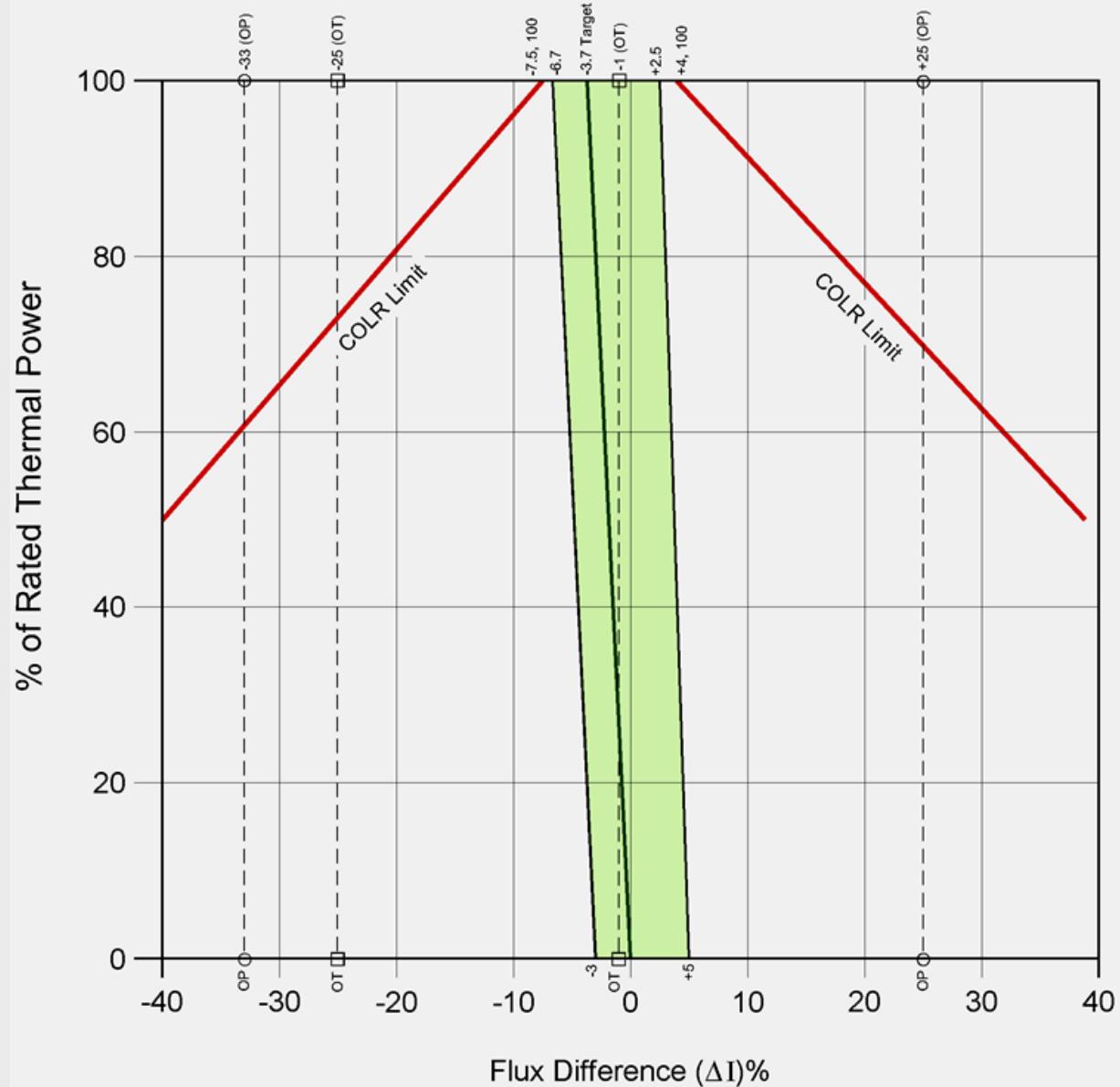


Fig 9.1-17



AFD Limits

